REST API TECHNICAL SPECIFICATION

Version 4.0

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1: Introduction

This document describes the interface for the Cosmic SMS Gateway and how to connect to our messaging platform to send SMS messages to UK and International mobile numbers.

The main features provided with the Cosmic SMS API are as follows:

- Send SMS messages up to 918 characters long.
- Send SMS messages in any language, including multiple symbol sets and emoji.
- Schedule messages for later delivery.
- Get the delivery status of each SMS sent.
- Get your latest account balance.

The Technical Specification has been designed to provide developers with a detailed description of the functionality available via the Cosmic SMS API - the submission parameters and valid data values, request and response examples and character encoding regimes. However, if any queries arise then please contact Cosmic SMS Customer Support –

Address: 2nd Floor, Nucleus House, 2 Lower Mortlake Road, Richmond. TW9 2JA
Tel: +44 (0) 20 7183 9065
Email: support@cosmicsms.com

2: Connectivity

This section describes how to connect to the Cosmic REST API and the authentication requirements.

2.1: Base URL

Base URL for all REST API connections: https://api.cosmicsms.com

2.2: Authentication

All Web API requests are authenticated using Basic Access authentication. The account username and API password are concatenated with a colon ':' separator to produce an authentication string. For example, if your user name is 'Geoffrey' and your password is 'AbC123DeF456', then your authentication string is: Geoffrey:AbC123DeF456

This authentication string is required to be Base64 encoded. Online tools are available to help, one example can be found at https://www.base64encode.org/. The encoded authentication string is then added to the HTTP header for all API requests. In the following example the encoded authentication string is shown in red.

POST * HTTP/1.1
From: www.myserver.co.uk
Host: api.cosmicsms.com
Authorization: Basic R2VvZmZyZXk6QWJDMTIzRGVGNDU2
Content-Type: application/xml
Content-Length: 247

2.3: HTTP Header Values

Name	Description	Example
POST	The Send SMS request uses the HTTP POST method.	POST * HTTP/1.1
Authorization	Basic authentication is used to pass the username and password in the HTTP header.	Authorization: Basic R2VvZmZyXk6QWJDMTIzRGVGNDU2
Content-Type	The message body uses XML.	Content-Type: application/xml

2.4: HTTP Response Status Codes

All HTTP requests to the Cosmic API REST API will return one of the HTTP response status codes shown below.

Status	Message
200 OK	The request has succeeded.
201 Created	The request has been fulfilled and resulted in a new resource being created.
400 Bad Request	The request could not be understood by the server due to malformed syntax.
401 Unauthorized	The request requires user authentication.
402 Payment Required	The request could not be processed due to insufficient funds.
404 Not Found	The server has not found anything matching the Request-URI.
405 Method Not Allowed	The method specified in the Request-Line is not allowed for the resource identified by the Request-URI.
415 Unsupported Media Type	The server is refusing to service the request because the entity of the request is in a format not supported by the requested resource for the requested method.
5xx Server error	Server error – contact Cosmic Support at support@cosmicsms.com

3: Sending SMS Messages

Request endpoint: https://api.cosmicsms.com/prod/rest/sms/send

The following tables describe the XML parameters and values that can be specified in the HTTP request when submitting SMS messages for delivery and the XML parameters and values received in the returned HTTP response.

3.1: XML Request Parameters

Name	Description	Example
xml	The XML header specifies the version and character-encoding of the message. The character-encoding should be set to 'UTF-8'.	<?xml version="1.0" encoding="UTF-8" ?>
message (ignored if template is set)	SMS Message text.	Hello World!
template (optional)	SMS Template Id Set the template Id instead of sending message text. Contact Cosmic support to set up a template.	1234
params (optional)	List of parameters. Parameters are used with templates to enable dynamic content. The parameter name is set in the tag <> Contact Cosmic support to set up a template.	<param1>1234</param1>
mobile	Target mobile phone number – mobile numbers are listed within the '<mobiles>' tag. Remove the '+' sign and any leading zeros when using international codes. A UK number can start with '07' or '447'.	07123456701 447123456701 491700015555
sender	The name shown on the recipient mobile handset as the sender of the message. The sender can be set to a name or a mobile phone number – for inbound SMS the sender must be set to a mobile phone number. Numeric – max length 15, Alphanumeric – max length 11 [a-z] [A-Z] [0-9] _-, no spaces.	CosmicSMS 447711456000
sendtime (optional)	Set the date and time to send the message, if this is not included or is set in the past, then the message will be sent immediately. Format ISO-8601 (*YYYY-MM-DDThh:mmZ*)	2014-11-05T13:15:30Z
multilingual (optional)	Enable Multi-Lingual message options. 0 = GSM7 - Send as GSM-7 message (default) 1 = Multi-Lingual - Send as Unicode SMS message.	0, 1 or 2

	2 = Auto-detect - Send as Unicode SMS message automatically if non-GSM-7 characters detected. The subject of Unicode and GSM7 encoding is explained in more detail in Section 6.	

3.2: Send SMS Example

Here is a simple example of how to send a batch (1 or more recipients) SMS message using Curl:

curl -k https://api.cosmicsms.com/prod/rest/sms/send -X POST -H "Authorization: Basic R2VvZmZyZXk6QWJDMTIzRGVGNDU2" --data-binary @cosmicsms_send.xml

Note: the above example will return '401 Unauthorised' so the Authorization header value needs to be replaced with valid authentication credentials.

The file 'cosmicsms_send.xml' contains the following example code –

```
<?xml version="1.0" encoding="UTF-8"?>
<sendsms>
  <sender>447711456000</sender>
  <message>test message</message>
  <mobiles>
    <mobile>07123456701</mobile>
    <mobile>07123456702</mobile>
  </mobiles>
</sendsms>
```

3.3: XML Response Parameters

Name	Description	Example
batch	Unique id set by Cosmic SMS.	156243
mobilestatus	Container element for the response status elements 'mobile', 'status id', and 'status text'.	
mobile	The submitted mobile number (international format).	447123456701
statusid	The status of the submitted message. Status SUCCESS = Message submitted successfully. See below for full list of submission status codes returned and descriptions.	SUCCESS
statustext	The status description text.	Message submitted successfully

3.3.1: Response Status Values

The message submission status is returned in the XML response parameter <statusid>.

Status ID	Status Text
SUCCESS	Success: Message submitted successfully
INVALID_REQUEST	Error: Invalid or badly formatted request
INVALID_VALUES	Error: Missing or badly formatted request value(s)
INVALID_USER	Error: Invalid username/password combination
INSUFFICIENT_CREDIT	Error: Insufficient credit
SYSTEM_ERROR	Error: System error
INVALID_MPNS	Error: No valid mobile numbers supplied
MAX_MPNS_EXCEEDED	Error: Too many mobile numbers supplied (Max: 500)
INVALID_MESSAGE_LENGTH	Error: Message length too long, max length 612 characters
INVALID_DELIVERY_DATE	Error: Invalid date/time for scheduled delivery
INVALID_MPN	Error: Invalid or badly formatted mobile number
INVALID_SENDER	Error: Invalid sender id. Max length: 11, [a-z] [A-Z] [0-9], no spaces
INVALID_RECEIPT_URL	Error: Invalid or badly formatted URL reply path
INVALID_TEMPLATE	Error: Invalid template
INVALID_PARAMS	Error: Invalid parameters

3.4: XML Response Example

```
<?xml version="1.0" encoding="UTF-8" ?>
<sendsms>
  <batch>20154010</batch>
  <mobilestatus>
    <mobile>447123456701</mobile>
    <statusid>SUCCESS</statusid>
    <statustext>Success: Message submitted successfully</statustext>
  </mobilestatus>
  <mobilestatus>
    <mobile>447123456702</mobile>
    <statusid>SUCCESS</statusid>
    <statustext>Success: Message submitted successfully</statustext>
  </mobilestatus>
</sendsms>
```

4: Get SMS Delivery Status

Request endpoint: https://api.cosmicsms.com/prod/rest/sms/status/{batch_id}

Get the delivery status for submitted messages. Returns the message delivery status for the 1 or more recipient mobile numbers associated with the specified batch id. The batch id is sourced from the XML response when an SMS message is submitted for delivery as described in section 3.3.

4.1: HTTP Header Values

Name	Description	Example
GET	The Get Balance request uses the HTTP GET method.	GET * HTTP/1.1
Authorization	Basic authentication is used to pass the username and password in the HTTP header (see section 2.2: Authentication for more details).	Authorization: Basic R2VvZmZyZXk6QWJDMTIzRGVGNDU2

4.2: Request Endpoint Path Values

Name	Description	Example
batch	Unique batch number associated with a submitted message to 1 or more mobile numbers.	12345678

4.3: Get SMS Delivery Status Example

Below is an example of how to get the delivery status for an SMS message batch using Curl:

curl -k https://api.cosmicsms.com/prod/rest/sms/status/12345678 -X GET -H "Authorization: Basic R2VvZmZyZXk6QWJDMTIzRGVGNDU2"

Note: The above example will return '401 Unauthorised' so the Authorization header value needs to be replaced with valid authentication credentials, and a valid batch number needs to be set.

4.4: XML Response Parameters

Name	Description	Example
batch	Unique batch id set by Cosmic SMS.	156243
messagestatus	Container element for the response status elements, this is repeated for each mobile in the batch.	<**messagestatus**> <messageid/> <mobile/> <statusid/> <statustext/> … </**messagestatus**>
messageid	Unique message id set by the Mobile networks.	12345678
mobile	The submitted mobile number (international format).	447123456701
statusid	The status of the submitted message. Status DELIV = Message successfully delivered. See below for full list of submission status codes returned and descriptions.	DELIVERED FAILED REJECTED UNKNOWN
statustext	The status description text.	Message successfully delivered
submittime	The date and time the message was submitted to the mobile networks.	2014-11-05T13:15:00Z

	Format ISO-8601 (*YYYY-MM-DDThh:mmZ*)	
deliverytime	The date and time from the delivery receipt confirming when the message was received by the mobile phone Note: this value is left blank if the delivery time is not relevant or not known	2014-11-05T13:16:00Z

4.4.1: Response Status Values

The message delivery status is returned in the XML response parameter <statusid>.

Status ID	Status Text
DELIVERED	Success: Message successfully delivered
FAILED	Fail: Message failed to deliver
REJECTED	Fail: Message was rejected by the network / handset
UNKNOWN	Unknown: Message delivery status is unknown
PENDING	Pending: Message is waiting to be processed
INVALID_USER	Error: Invalid username/password combination
SYSTEM_ERROR	Error: System error

5: Get Account Balance

Request endpoint: https://api.cosmicsms.com/prod/rest/account/balance

Retrieve the current account balance using the HTTP GET method.

5.1: HTTP Header Values

Name	Description	Example
GET	The Get Balance request uses the HTTP GET method.	GET * HTTP/1.1
Authorization	Basic authentication is used to pass the username and password in the HTTP header (see section 2.2: Authentication for more details).	Authorization: Basic R2VvZmZyZXk6QWJDMTIzRGVGNDU2

5.2: Get Account Balance Example

Here is an example of how to retrieve your account balance using Curl:

```
curl -k https://api.cosmicsms.com/prod/rest/account/balance -X GET -H "Authorization: Basic UGhpbFRlc3QyOmY1NjI3MzLTRjNg=="
```

Note: The above example will return ‘401 Unauthorised’ as the Authorization header value needs to be replaced with valid authentication credentials.

5.3: XML Response Parameters

Name	Description	Example
getbalance	Container element for the response status elements 'balance' and 'currency'	
balance	Account balance	65.82
currency	Currency for returned account balance returned in <balance>	GBP (UK pounds) EUR (Euros)

5.3.1: Response Status Values

Status ID	Status Text
SUCCESS	Success: Account balance successfully retrieved
INVALID_USER	Error: Invalid username/password combination
SYSTEM_ERROR	Error: System error

5.4: XML Response Example

```
<?xml version="1.0" encoding="UTF-8" ?>
<getbalance>
   <balance>65.82</balance>
   <currency>GBP</currency>
</getbalance>
```

6: Character Sets and Encodings

The GSM-7 and Unicode character encoding standards are supported for sending SMS text messages. GSM-7 defines the standard alphabet which is mandatory for mobile networks and GSM mobile handsets (all mobile phones with a SIM card). Unicode is implemented at the mobile network level as UCS-2 and enables the transmission of a broader range of languages and richer content to mobile phones.

The character encoding you should use depends on the language and symbols you need to send in the SMS message. The character encoding used also dictates the maximum length of a SMS text message and therefore can also affect the cost of an SMS message.

GSM-7 is the default character encoding used, if unspecified in the API request.

6.1: GSM-7

GSM-7 is the standard character set for sending SMS messages and is supported on GSM networks and mobile handsets globally. It contains the more commonly used letters, accented forms and symbols and is suitable for English and most West-European languages.

Each GSM-7 character uses 7-bits. A standard GSM-7 message contains up to 140 bytes, which translates to 160 characters (140*8)/7 = 160.

6.1.1: GSM-7 Character Set

@	Δ	SP	0	¡	P	¿	p
£	_	!	1	A	Q	a	q
$	Φ	"	2	B	R	b	r
¥	Γ	#	3	C	S	c	s
è	Λ	¤	4	D	T	d	t
é	Ω	%	5	E	U	e	u
ù	Π	&	6	F	V	f	v
ì	Ψ	'	7	G	W	g	w
ò	Σ	(	8	H	X	h	x
Ç	Θ	)	9	I	Y	i	y
LF	Ξ	*	:	J	Z	j	z
Ø	ESC	+	;	K	Ä	k	ä
ø	Æ	,	<	L	Ö	l	ö

6.1.2: GSM-7 Character Set - Extended

The GSM-7 standard also defines an extended character set containing the following characters:

{ } \ ~ [ ] | ^ €

These are transmitted to the mobile handset in an escaped format, and consequently use 2 7-bit characters each instead of 1.

6.2: Multi-Lingual

With the 'multilingual' option enabled, messages are sent using the Unicode standard which allows for a much wider range of characters to be sent that are not available in the GSM-7 character set.

Each Unicode character uses 2 bytes (16 bits). A standard Unicode message contains up to 140 8-bit octets, which translates to 70 characters (140*8)/16 = 70.

The full list of Unicode characters can be found here.

6.2.1: Unicode – Pros and Cons

Pros: The Unicode character set is used for Multi-Lingual messages and supports a huge range of characters not available in the GSM-7 character set. This includes non-Latin alphabets such as Chinese, Russian and Arabic, mathematical and technical symbols and emoji.

Cons: Unicode characters are sent to the mobile handset using 2 bytes per character, which limits the length of a (non-concatenated) Unicode message to 70 characters. The maximum message length for a (non-concatenated) GSM-7 message is 160 characters. SMS messages are charged on a per message basis so this can have cost implications.

Both Unicode and GSM-7 messages can be sent as concatenated multi-part SMS messages which are displayed on the recipient mobile handset as a single long SMS message. Concatenated SMS messages are explained further in Section 7.

6.3: XML Special Characters

The following characters should be represented in the **message** field as XML entity values so they do not interact with the syntax of the XML mark-up.

Character	Description	Entity
<	Less-than	<
&	Ampersand	&
>	Greater-than	>

7: Concatenated SMS Messages

If an SMS message exceeds the single message length of 160 characters for a GSM-7 message or 70 characters for a Unicode message, it is split into smaller parts, which are then sent as individual messages, each with a 6 byte user data header (UDH) that contains the information the recipient phone requires to re-order the message parts correctly and display as a single message. The required addition of the 6 byte UDH for messages exceeding the standard length is the reason for the slightly reduced length of the subsequent message parts.

The table below illustrates the incremental and total number of characters available for a concatenated message, depending on the character set used.

Number of SMS	Max GSM-7 Characters	Maximum Unicode Characters	Total SMS Message Cost
1 standard SMS	160	70	1 x SMS
2 standard SMS	306	134	2 x SMS
3 standard SMS	459	201	3 x SMS
4 standard SMS	612	268	4 x SMS

5 standard SMS	765	335	5 x SMS
6 standard SMS	918	402	6 x SMS

The total message cost calculation shown in column 4 above is based on the standard SMS cost for each country. For example, the cost for a standard UK SMS message is £0.03, so a GSM-7 message of 420 characters would cost 3 x £0.03, a total of £0.09, or 9p.